DEVELOPMENT OF A PROTOTYPE COLLABORATIVE ROBOT FOR FUSION REMOTE HANDLING APPLICATIONS

- Remote handling (RH) systems are extremely crucial for maintenance of fusion devices → High availability of machine for operations
- Need to equip RH operators with advanced assisting tools like Virtual Reality and Haptics
- Force feedback, Force control & Collaborative mechanism can help in better perception of the tokamak RH operations

KEY ACHIEVEMENTS

- An efficient control system architecture has been targeted to integrate the force feedback and force control mechanisms alongside Virtual reality
- A 6 axis master arm has been developed and tested for remote position control
- A collaborative robot design is being developed → Can be used as a fast training system
- A 1-DOF back-drivable actuator is developed with applications in VR haptics and collaborative robots.
- The system can be of immense help to RH operators in executing dynamic operations as expected in a tokamak.